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PATENT AGENT  
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PAPER # 15

**FACSIMILE COVER SHEET**

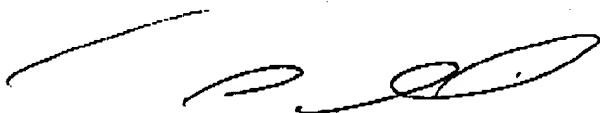
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<b>TO:</b>	Mr. Joseph Nguyen
<b>COMPANY:</b>	U.S. Patent and Trademark Office, Group Art Unit 2815
<b>FAX NO.:</b>	703-872-9306
<b>FROM:</b>	Michael R. Gilman, Esq.
We are sending a communication of <b>15</b> page(s) (including this cover sheet). Please call (732) 634-7634 immediately if transmission is interrupted or of poor quality.	
<b>OUR REF:</b> 312/12	<b>DATE:</b> November 5, 2004

**MESSAGE:**

Dear Mr. Nguyen:

In connection with your recent telephone conversation with our legal assistant, Paula Halsey, attached please find the documents that were filed on March 9, 2004, but were lost in the U.S. Patent and Trademark Office.

Should you have any questions, please do not hesitate to contact us.



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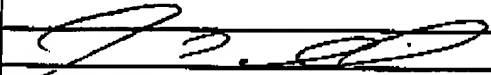
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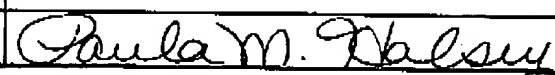
<b>TRANSMITTAL FORM</b> <i>(to be used for all correspondence after initial filing)</i>	Application Number	09/852,582	
	Filing Date	05/09/01	
	First Named Inventor	Uten Sarathy	
	Art Unit	2815	
	Examiner Name	Joseph Nguyen	
Total Number of Pages in This Submission	15	Attorney Docket Number	312/12

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Copies of 3/9/04 & 11/4/02 stamped postcards, 10/28/02 Amdt. & 3/9/04 Req. to W/D...Abandonment.
Remarks Sent by fax with fax cover sheet.		

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Michael R. Gilman (Reg. No. 34,826)
Signature	
Date	November 5, 2004

## CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.			
Typed or printed name	Paula M. Halsey		
Signature		Date	November 5, 2004

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

KAPLAN & GILMAN, L.L.P. Date 3/9/04 Att. ley. JIK  
Re: Method for Bit-Rate & Format Insensitive  
Performance Monitoring of Lightwave Sign.  
Attorney Docket No.: 312/12 Serial/Patent No.: 08/852,582

## Enclosures:

<input type="checkbox"/>	Cover Page: _____
<input type="checkbox"/>	Patent Application ( <input type="checkbox"/> pgs.) <input type="checkbox"/> Utility <input checked="" type="checkbox"/> Design <input type="checkbox"/> Provl <input type="checkbox"/> Divl
<input type="checkbox"/>	____ Sheets of drawings: <input type="checkbox"/> informal <input type="checkbox"/> formal of Figs. _____
<input type="checkbox"/>	Notice to File Missing Parts <input type="checkbox"/> Amendment _____ pgs.
<input type="checkbox"/>	Declaration and POA <input checked="" type="checkbox"/> Other <u>Request to Withdraw</u>
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filed docs +  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicant** : Jithamithra Sarathy, et al.  
**Title of Invention** : **METHOD FOR BIT-RATE AND FORMAT  
INSENSITIVE PERFORMANCE MONITORING OF  
LIGHTWAVE SIGNALS**  
**Filed** : May 9, 2001  
**Serial No.** : 09/852,582  
**Examiner** : NGUYEN, Joseph  
**Art Unit** : 2815  
**Attorney Docket No.** : 312/12

**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, VA 22313-1450**

**REQUEST TO WITHDRAW THE NOTICE OF ABANDONMENT**

Dear Sirs,

Applicants have just received a Notice of Abandonment mailed February 27, 2004 from the USPTO, in which Applicants are informed that the application is abandoned because no reply has been received in response to the Office Action dated September 16, 2002.

Applicants have reviewed the file of the application, and believe that a response to the Office Action dated September 16, 2002 was timely submitted on October 28, 2002 and was received by the USPTO on November 4, 2002 (as shown on the return postcard received from the USPTO). A copy of the submission on October 28, 2002 as well as the return postcard from the USPTO are enclosed herewith.

Therefore, Applicants respectfully request that the Examiner withdraw the Notice of Abandonment and continue the examination on the application. No fee is believed due. However, the Examiner is authorized to deduct any fees believed due from our Deposit Account No. 11-0223.

Respectfully submitted,

KAPLAN & GILMAN, L.L.P.  
900 Route 9 North  
Woodbridge, New Jersey 07095  
Telephone (732) 634-7634

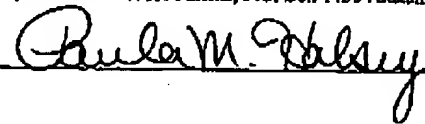
DATED: March 9, 2004

  
Jeffrey L. Kaplan  
(Reg. No. 34,356)

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Dated March 9, 2004 Signed



Printed Name Paula M. Halsey

KAPLAN & GILMAN, L.L.P. Date 10/28/04 Atty MRP

Re: Method for Bit-Rate and Format Insensitive  
Performance Monitoring of Lightwave Signals

Atty Dkt No. 312/12

Client Name: Alphion

S/N: 09/852,582 R/N: \_\_\_\_\_

IP/N: \_\_\_\_\_

Enclosures: Amendment (9 pgs)

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicant** : **Jithamithra Sarathy, et al**  
**Title of Invention** : **METHOD FOR BIT-RATE AND FORMAT  
INSENSITIVE PERFORMANCE MONITORING OF  
LIGHTWAVE SIGNALS**  
**Filed** : **May 9, 2001**  
**Serial No.** : **09/852,582**  
**Examiner** : **NGUYEN, Joseph**  
**Art Unit** : **2815**  
**Attorney Docket No.** : **312/12**  
**Box Amendment**  
**Commissioner for Patents**  
**Washington, DC 20231**

**AMENDMENT**

Sir:

This is responsive to the Office Action dated September 16, 2002, in connection with the above-referenced patent application.

**IN THE CLAIMS:**

The applicants have deleted claims 30 and 32, amended claims 1, 5, 31 and 33, and have added claims 34 and 35, as follows.

1. (Twice Amended) A semiconductor device comprising:  
a waveguide core for passing light therethrough;  
a grating with a tunable effective index for reflecting one or more wavelengths of  
said light;

an absorption section for absorbing said reflected wavelengths and generating a photocurrent from said absorbed wavelengths; and

a tuning section for changing said effective index of said grating so that only a particular wavelength is selected to be reflected by said grating and therefore absorbed by said absorption section.

5. (Twice amended) A semiconductor photodetector device comprising:

a substrate of a first doping type;

an undoped region, laterally disposed above the substrate;

a waveguide laterally disposed above the undoped region for passing light therethrough;

a grating with a tunable effective index positioned between the substrate and the undoped region for reflecting one or more wavelengths of said light;

an upper region, of a second doping type, laterally disposed above the waveguide region;

an absorption section positioned above said upper region for absorbing said reflected wavelengths and generating a photocurrent from said absorbed wavelengths;

a tuning section for changing said effective index of said grating so that only a particular wavelength is selected to be reflected and therefore absorbed by said absorption section..

30. (Deleted)

31. (Amended) The semiconductor device of claim 1 wherein said tuning section comprises an electrode, and said effective index is changed by changing an electrical current injected into said electrode.

32. (Deleted)

33. (Amended) The semiconductor photodetector of claim 5 wherein said tuning section comprises an electrode, and said effective index is changed by changing an electrical current injected into said electrode.

34. (Added) The semiconductor device of claim 1 wherein said absorption section comprises an electrode for generating said photocurrent from said absorbed wavelengths.

35. (Added) The semiconductor photodetector of claim 5 wherein said absorption section comprises an electrode for generating said photocurrent from said absorbed wavelengths.

#### REMARKS

This is responsive to the office action dated September 16, 2002 in which the Examiner rejects all the pending claims 1-13, 16, 18-19 and 29-33 either as being anticipated by Matsui (JP Patent 363111679A) under 35USC §102(b) or as being obvious over Matsui (JP Patent 363111679A), Aoki et al (US Patent 5,737,474), Chandrasekhar (US Patent 5,689,122), Nitta et al (US Patent 6,252,895), Rushing (US Patent 6,331,832) and/or their combinations under 35USC §103(a). The Examiner also rejects claims 30-33 for being indefinite under 35USC §112. The applicants have further amended independent claims 1, 5, 31 and 32 for more clearly defining the present invention, deleted claims 30 and 32, and added two new dependent claims 34 and 35. The applicants believe that the above amendment has overcome the rejections under 35USC §112, and respectively traverse the rejections of the Examiner under 35USC §102(b) and 35USC §103(a) based on the above amendment and the explanations as below.

The present invention teaches a novel semiconductor device (photodetector) for

measuring and monitoring light waves by generating a photocurrent from light of one or more wavelengths that is reflected by a grating and absorbed by an absorption section. In particular, as taught by the present invention as defined in the amended independent claims 1 and 5, the semiconductor device/photodetector comprises a distinguishing feature that a tuning section for changing the effective index of the grating so that only a particular wavelength is selected to be reflected and therefore absorbed by said absorption section. With the present invention, the effective index of the grating is tunable during the measurement, thus the measurement can be carried out wavelength by wavelength with the same grating, which substantially increases the measuring speed. In a preferred embodiment, the tuning section comprises an electrode, and the effective index of the grating is changed by changing an electrical current injected into the electrode, as defined in claims 31 and 33.

The applicants do not agree with the allegation of the Examiner that the present invention has been anticipated by Matsui (JP 63111679 A). In particular, the applicants do not agree with the allegation of the Examiner that "the electrode 18 functions as a tuning section", and that the element 17 is "means for selecting a particular wavelength by changing said effective index of said grating" as stated in the Office Action since such allegation lacks support from the disclosure in Matsui. Matsui discloses a semiconductor element which can detect only a part of light in an optical waveguide layer and propagate the other light through this layer. As disclosed in Matsui and shown in Figure 1, the light satisfying the Bragg reflection condition is reflected by the grating 14 to the absorption layer 16, from which a photocurrent is generated by the electrode 18 which is positioned on the depletion region 17 of the absorption layer 16. It can be

found nowhere in Matsui that the electrode 18 or the depletion region 17 functions as a tuning section for changing the effective index of the grating 14, as alleged by the Examiner. In fact, like the electrode 106A in the present application, the electrode 18 functions to generate photocurrent from the reflected light that is absorbed by the absorption layer 16 and the depletion region 17. Though it is well known in the art (such as Deacon patent US 6,373,872) that the effective index of a grating can be tuned in various ways including by changing an electrical current injected to an electrode provided on the device, but in Matsui the electrode 18 functions to generate a photocurrent from the reflected light, but does not function as a tuning section to change the effective index of the grating 14. There is no teaching in Matsui that a current is injected into the electrode 18 to determine the effective index of the grating 14 and is changeable so as to change the effective index of the grating 14. There is no such a teaching in Figure 3 either. In Figure 3, three different grating 14a, 14b and 14c are arranged along the waveguide for reflecting light of three different wavelengths, and the electrodes 18a, 18b and 18c function to generate photocurrents from the respective reflected light wavelength but not as tuning section for changing the effective index of any of the gratings 14a, 14b and 14c. In fact, throughout the disclosure in Matsui, there can not be found anywhere a teaching or implication that the effective index of the grating 14 or 14a-14c is tunable or changeable. In a word, Matsui does not disclose any tuning means to change the effective index of any of the gratings. 14, 14a-14c. Therefore, the applicants believe that claims 1 and 5 are not anticipated by Matsui as alleged by the Examiner.

Furthermore, the applicants do not agree with the allegation of the Examiner that in

Chandrasekhar (US 5,689,122) the contact 22 reads as "the tuning section" of the present invention and that the p-contact layer 7 functions "for selecting a particular wavelength by changing said effective index of said grating" because such allegation lacks support from the disclosure of Chandrasekhar. Such alleged functions can be found nowhere in Chandrasekhar. As described in Chandrasekhar, the contact 22 and the p-contact layer 7 are elements of the p-i-n photodiode 12 and are positioned above an absorber layer 6 (col. 2, lines 55 - 58). It can not be found anywhere throughout Chandrasekhar an explanation or description that the contact 22 or the p-contact layer 7 is a tuning section for changing said effective index of said grating so that only a particular wavelength is selected to be reflected and therefore absorbed by said absorption section, which is a distinguishing feature of the present invention. This distinguishing feature can not be found in Nitta et al (US 6,252,895) either. Therefore, the applicants believe that claim 5 is not obvious over Chandrasekhar or Nitta et al or their combination.

Therefore, independent claims 1 and 5 are not anticipated by Matsui and claim 5 is not obvious by Chandrasekhar in view of Nitta. The above feature as underlined can not be found in other two cited patents, Aoki et al and Rushing either. Thus, claims 1 and 5 are patentable. At least for the same reasons, their dependent claims 2-4, 6-16, 18-19, 31, 33-35 are also patentable.

In addition, the applicants can not found anywhere in Chandrasekhar a disclosure or implication that the p-contact layer 7 is used for changing an electrical current input to the electrode 22, as alleged by the Examiner. In fact, there is no teaching in Chandrasekhar on changing an electrical current injected into the electrode so as to change the effective index of

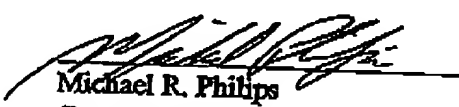
the grating (if there is an implied grating as presumed by the Examiner). Therefore, the above feature as defined in claims 31 and 33 of present application is not disclosed in Chandrasekhar either, and thus strengthens the patentability of claims 31 and 33.

Thus, the applicants respectfully request reconsideration based on the amendment and remarks as above. Any fees believed due should be charged to our Deposit Account No. 11-0223.

Respectfully submitted,

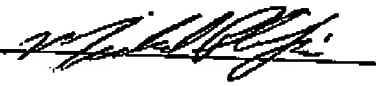
KAPLAN & GILMAN, L.L.P.  
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Telephone (732) 634-7634

DATED: October 28, 2002

  
Michael R. Philips  
(Reg. No. 34,407)

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Dated October 28, 2002 Signed  Print Name Michael R. Philips

**MARKED-UP VERSION OF AMENDED CLAIMS 1, 5, 31 and 33**

1. (Twice Amended) A semiconductor device comprising:

[a buried grating;]

a waveguide core for passing light therethrough;

a grating with an effective index for reflecting one or more wavelengths of said light;

an absorption section for absorbing said reflected wavelengths and generating a photocurrent from said absorbed wavelengths; and

a tuning section for changing [an] said effective index of said grating so that only a particular wavelength is selected to be reflected by said grating and therefore absorbed by said absorption section.

5. (Twice amended) A semiconductor photodetector device comprising:

a substrate of a first doping type;

an undoped region, laterally disposed above the substrate;

[a grating positioned between the substrate and the undoped region;]

a waveguide laterally disposed above the undoped region for passing light therethrough;

a grating with an effective index positioned between the substrate and the undoped region for reflecting one or more wavelengths of said light;

an upper region, of a second doping type, laterally disposed above the waveguide region  
[, where the waveguide is of a different atomic composition than the substrate, undoped region, and upper region];

an absorption section positioned above said upper region for absorbing said

reflected wavelengths and generating a photocurrent from said absorbed wavelengths;

a tuning section for changing [an] said effective index of said grating so that only a particular wavelength is selected to be reflected and therefore absorbed by said absorption section..

31. (Amended) The semiconductor device of claim [30] 1 wherein said tuning [region] section comprises an electrode, and [said means for selecting comprises means for] said effective index of the grating is changed by changing an electrical current [input to] injected into said electrode.

33. (Amended) The semiconductor [device] photodetector of claim [32] 5 wherein said tuning [region] section comprises an electrode, and [said means for selecting comprises means for] said effective index of the grating is changed by changing an electrical current [input to] injected into said electrode.